

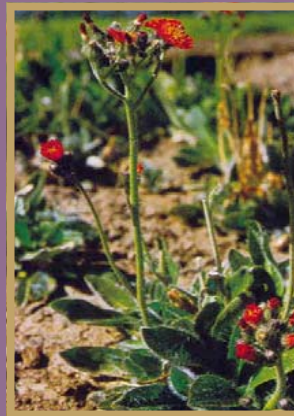
Concerns of Idaho's Agriculture and Rangelands

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Invasive Insects, Plant Diseases and Weeds



Gypsy Moth



Orange Hawkweed



Viper Bugloss



Japanese Beetle

Invasive Species are “alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health”

An alien species, also called non-native, non-indigenous, or exotic, is one that is introduced, accidentally or purposefully, into an ecosystem in which it did not evolve. Alien or exotic species can come from other continents, other countries and even other parts of the United States.

Exotic species are not automatically “bad.” Most of our important food crops and domesticated animals are exotic. But both exotic and native species become problems when they are invasive. Invasive species often exhibit certain characteristics: they spread aggressively, reproduce quickly, have short juvenile periods, tolerate a wide range of climatic conditions and habitats, compete efficiently against other species, and thrive in disturbed areas.

Invasive species cause ecological damage by out competing native species, reducing biological diversity, and changing ecosystem functions such as flood and fire regimes or nutrient cycling.

Invasive species also have major economic consequences, including the loss of economically valuable species and the costs of controlling or managing infestations on public and private lands.

Inside is a representative list of species that are not currently in Idaho;

- currently regulated by state and/or federal law.
- widely recognized by biologists and resource managers to degrade natural ecosystems, or negatively affect native species.
- known to have significant economic impacts on agricultural ecosystems, public infrastructure or natural resources, including impact on recreational activities.
- Have, or can have, deleterious effects on human health.

What can you do to help?

Invasive species spread in many ways, often helped unintentionally by people. You can slow the spread of invasive species, and prevent new invasions, by being an aware, responsible and vocal property owner.

Scout for invasive species. Learn which plants and insects could be a problem in Idaho, so you can recognize them if you see them.

Remove invasive species before they become a problem. The best way to control invasives is through early detection and rapid response. Pull, cut, spray or deadhead problem plants before they go to seed. Report unusual plants and insects to your local extension agent.

Avoid introducing invasive species. Check with plant sellers before you buy, to make sure that the plant you want, whether native or exotic, is not invasive. Ask about non-invasive alternatives for your garden.

Avoid transporting invasive species. Seeds of invasive plants and immature stages of insects are easily moved from place to place on hiking boots, car tires, pants cuffs, and camping or recreational gear. Check that your gear or boat is clean, especially when entering wild lands or other natural areas, or any bodies of water.

Minimize disturbance. Many invasive species, especially plants, are adapted to disturbance and rapidly take over newly disturbed areas. Keep open areas on your property to a minimum and monitor disturbed areas for species that spread quickly.

Spread the word. Invasive species have environmental, economic and social impacts on all of us. Report your observations to appropriate state government agencies and conservation groups.



Salt Cedar



Japanese Knotweed



Giant Hog Weed



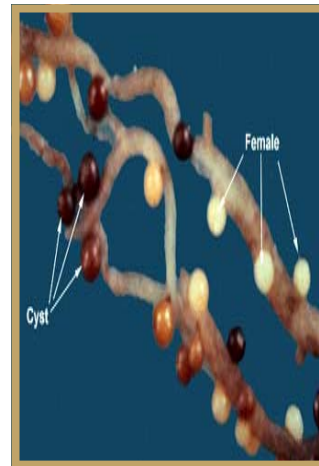
Pierce's disease of grapes



Brown Rot of Potatoes



Sudden Oak Death



Golden Nematode



Brown Marmorated stink bug

| Common Name | Scientific Name | Description |
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| Aquatic Plants | | |
| Brazilian Elodea | <i>Egeria densa</i> | Very bushy plant with dense whorls of bright green leaves. |
| Hydrilla | <i>Hydrilla verticillata</i> | Submersed perennial with branched stems and forming tursions and tubers. |
| Japanese Knotweed | <i>Polygonum cuspidatum</i> | Stems are stout, reddish-brown. Leaves are short-petioled and flowers are greenish white. |
| Parrot Feather Milfoil | <i>Myriophyllum aquatica</i> | Bright green feathery stems that trail across water. |
| Salt Cedar (Riparian) | <i>Tamarix ramosissima</i> | Evergreen shrubs or small trees. Stems are reddish-brown, leaves are small and scale-like and flowers are pink. |
| Water Hyacinth | <i>Eichhornia crassipes</i> | Bright shiny green fleshy leaves and attractive mauve flowers. |
| Terrestrail Plants | | |
| Giant Hogweed | <i>Heracleum mantegazziznum</i> | Stems and stalks are hollow. Compound of leaves. Each leaflet is deeply incised. Inflorescence is composed of many small white florets. Stems and leaves contain caustic sap. |
| Houndstongue | <i>Cynoglossum officinale</i> | Leaves are rough, hairy, and lacking teeth or lobes. Flowers are reddish purple, terminal. |
| Mediterranean Sage | <i>Salvia aethiopis</i> | Stem white woolly and leaves broad, coarsely and sharply toothed. Flowers yellowish-white. |
| Orange Hawkweed | <i>Hieracium aurantiacum</i> | Leaves are basal and stems are bristly. Striped shaped flowers are red-orange. |
| Ox-eye Daisy | <i>Chrysanthemum leucanthemum</i> | Leaves are dark green, simple, lobed. Stem smooth and has daisy-like flowers. |
| Vipor Bugloss | <i>Echium vulgare</i> | Stems covered in stiff hairs with swollen reddish to black spots on stem and purple flowers. |
| Yellow Hawkweed | <i>Hieracium pratense</i> | Leaves are basal and stems are bristly. Strap-shaped flowers are yellow. |
| Insects and Mites | | |
| Africanized honey bee | <i>Apis mellifera</i> | Similar to domestic breeds of honey bees but these bees have dangerously aggressive colony defense behavior. |
| Apple ermine moth | <i>Ypomoneuta malinellus</i> | Adults have striking white forewings with rows of small black spots. The wingspan of the moth approaches ¾ inch. |
| Apple Maggot | <i>Ragoletis pomonella</i> | A small black fly with dorsal white spot on the thorax. The wings are broad and clear at the base. Four dark cross-bands traverse each wing. Adult length about ¼ inches. |
| Asian gypsy moth | <i>Lymantria dispar spp.</i> | Male moth are brown in color with irregular black wing markings and feather antennas. Female moth white in color. This female is a strong flyer. Wing spans similar to European gypsy moth. |
| Asian longhorned beetle | <i>Anoplophora glabripennis</i> | Adults are large 1 to 1 ½ inches in length with very long black & white banded antennas. Body glossy black with irregular white spots. |
| Bee mite | <i>Tropilaelaps clareae</i> | The females of T. clareae are light-reddish brown and about 1.0 mm long x 0.6 mm wide, and the males are almost as large as the females. This is a serious mite parasite of honey bees. |
| Brown Marmorated Stink bug | <i>Halyomorpha halys</i> | These true bugs arte shades of brown on both the upper and lower body surfaces. They have a “shield” shaped body similar to other stink bugs. Adult bugs are about ½ inch long. |

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| Citrus longhorned beetle | <i>Anoplophora chinensis</i> | Very similar to Asian longhorned beetles. Shiny black body with irregular white slotches on it's back. Long black and white banded antennae. |
| Emerald ash borer | <i>Agrilus planipennis</i> | Adults are flat headed borers, dark metallic green in color. ½ inch in length and 1/16 inch wide. |
| European corn borer | <i>Ostrinia nubilalis</i> | Female moth has a robust body and is pale yellow to light brown. Dark zigzag lines on the outer third of the wing. Male moth is smaller, slender and darker than the female. Two zigzag streaks on the outer third of the wings. |
| European gypsy moth | <i>Lymantria dispar</i> | Male moths are brown in color with irregular black wing markings and feather antennae. Female white in color. This female can not fly. Males have a wing span of 1-1 ½ inches, female large with span of up to 3- ½ inches. |
| Haanchen barley mealybug | <i>Trionymus haancheni</i> | Small soft bodied insects related to aphids, these insect cover their bodies with white waxy secretion appearing like a finely ground, powdery white meal. |
| Japanese beetle | <i>Popilla japonica</i> | Adult beetles are metallic green with copper-brown wing covers. 5 small white tufts project from the wing covers on each side. Adult beetles are a little less than ½ inch, long. |
| Kaphra beetle | <i>Trogoderma granarium</i> | These insects are brown to black with an oblong-oval beetle approximately 1.6 - 3.2 mm long and 0.9 – 1.7 mm wide. Kaphra beetles are a serious pest of stored grain and grain products. |
| Leek Moth | <i>Acrolpiopsis assectella</i> | A small reddish-brown moth with a white triangular mark on the middle of the folded wings and with a scattered white dusting.. Wing span about 8mm. |
| Mexican bean beetle | <i>Epilachna varivestis</i> | Adult is oval shaped and copper colored, with 16 black spots on its back. They are one of the largest species in the ladybird beetle family. |
| Pine shoot beetle | <i>Tomicus piniperda</i> | Adult pine shoot beetles are 3 to 5 mm long, or about the size of a matchhead. They are brown or black and cylindrical. |
| Plum curculio | <i>Conotrachelus nenuphar</i> | Adult is a small, rough snout beetle, 4 to 6 mm long and mottled with black, gray and brown. |
| Red imported fire ants Black imported fire ants | <i>Solenopsis invicta</i> <i>Solenopsis richteri</i> | Adult red imported fire ants are reddish to dark brown and occur in five forms: (1) minor workers (2) major workers (3) winged males and (4) females (5) queens. The ants have a ferocious sting and protect their colonies aggressively. |
| Small hive beetle | <i>Aethina tumida</i> | Adults are dark brown to black oval in shaped beetles. This hive pest is 5-7mm long and 3-5mm wide. |
| European corn borer | <i>Ostrinia nubilalis</i> | Female moth has a robust body and is pale yellow to light brown. Dark zigzag lines on the outer third of the wing. Male moth is smaller, slender and darker than the female. Two zigzag streaks on the outer third of the wings. |
| Terrestrial Invertebrates | | |
| Brown garden snail | <i>Cryptomphalus aspersa</i> | Large terrestrial snail about 1-1 ½ inches long. Shell is usually pale brown with dark spiral bands often flecked with white. |
| French escargot snail | <i>Helix pomatia</i> | Snail shell up to 50 mm in diameter globular with 5-6 convex whorls. |
| Giant African snail | <i>Achatha fulica</i> | This very large snail has shiny conical shell with darker bands running across the spiral. They are usually around 7 cm in size, but can reach 20 cm. |
| Green garden snail | <i>Cantareus apertus</i> | Snail shell is thinner than the brown garden snail and maximum diameter is 26 mm. |

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| Milk snail | <i>Otala lactea</i> | Shell has distinctive dark chocolate brown aperture with the overall shell has maximum diameter of 42 mm. |
| White or White Italian snail | <i>Theba pisana</i> | Maximum diameter of the shell is 25 mm. Shell color is variable white, ginger or rarely pink. |
| Plant Pathogens and Parasitic Nematodes | | |
| Anthracnose of lentils | <i>Colletotrichim truncatum</i> , <i>C. lindemuthianum</i> | Fungal disease that causes brown, lens-shaped lesions on leaves and stems. Small bristle-like, spore-bearing structures are visible in the lesions. |
| Bean anthracnose | <i>Colletotrichum lindemuthianum</i> | Fungal disease that causes dark brown to black sunken lesions on cotyledons and seed pods. Leaf lesions are angular, red to purple to black. Spore masses, and bristle like appendages may be visible in lesions. |
| Brown rot of potatoes | <i>Ralstonia solanacearum</i> , <i>race3, biovar 2</i> | Bacterial disease which causes a brown, bacterial rot potato tubers that renders them unmarketable. In the field, infested plants are noticeable by yellow or wilted leaves. |
| Brown striped downy mildew of corn | <i>Sclerophthora rayssiae</i> var. <i>zeae</i> | Fungal disease typified by yellow, vein delimited, leaf lesions found mostly on lower leaves. |
| Golden Nematode | <i>Globodera rostochiensis</i> | Plants are stunted and yellow, and may die off completely, usually in patches in the field. Potato tubers from affected plants are usually small, but show no other symptoms. |
| Karnal Bunt | <i>Tilletia indica</i> | The diseased portion of kernels is dark in color and fishy smelling. The kernel usually remains whole, with only a part of the germ end converted into a black powdery spore mass, usually along the kernel groove. |
| Onion White Rot | <i>Sclerotium cepivorum</i> | Foliage symptoms include yellowing, leaf dieback and wilting. Older leaves are affected at first, followed by stunting of plants and death of all foliage. Small, round, black structures may be visible on affected tissues. |
| Pierce's disease of grapes | <i>Xylella fastidiosa</i> | Lethal bacterial disease of grapevines, and other crops. Symptoms begin with leaf scorch and stunting, and eventually kill the plant. |
| Plum pox | <i>Plum pox Potyvirus</i> | Viral disease of stone fruit that causes ring spots, blotches and necrotic areas on fruit and leaves. |
| Potato wart | <i>Synchytrium endobioticum</i> | Fungal disease which causes wart-like symptoms on tubers and stolons (underground stems). Not noticed until the crop is lifted. |
| Soybean rust Asian soybean rust | <i>P. Meibomiaae</i> <i>Phakospsora pachyrhizi</i> | Soybean rust forms two types of lesions on leaves, tan and reddish brown. The tan lesions when mature consist of small pustules with masses of tan colored urediniospores on the surface. |
| Sudden oak death and Ramorum | <i>Phytophthora ramorum</i> | Symptoms vary from plant to plant, and may include leaf spots, needle and tip blight, shoot-tip dieback, and canker formations. Many other plant pathogens cause the same symptoms. The only way to confirm the presence of sudden oak death is trough laboratory testing . |

For Further Information

Insects

**Ben Simko, Program Manager
Pest Survey and Detection
(208) 332-8620**

Plant Diseases

**Liz Vavricka, Program Manager
Plant Industry Lab
(208) 332-8644**

Weeds

**Matt Voile, Program Manager
Noxious Weed Management
(208) 332-8528**

Other Cooperating Agencies

**Jeff Fidgen, Entomologist
Idaho Dept. of Land
(208) 666-8624**

**Dave McNeal, State Plant Health Director
USDA, APHIS, Plant Protection and Quarantine
Boise, Idaho (208) 378-5797**

Additional Contacts

**Local County Extension Offices
County Weed Superintendents**

Invasive Species

**Idaho State Department of Agriculture
2270 Old Penitentiary Road
Boise, Idaho 83712**

**Office: 208-332-8620
Fax: 208-344-2283**

General Useful Web Sites:

Idaho State Department of Agriculture
<http://idahoag.us>

National Invasive Species Website
<http://www.invasivespecies.gov>

National Pest Information System (Pest Tracker)
<http://ceris.purdue.edu/napis>

USDA, APHIS Plant Protection and Quarantine
<http://www.aphis.usda.gov/ppq>

Insect Web Sites

The Bugwood Network
<http://www.bugwood.org/>

Invasive Species Insect Page
<http://www.invasive.org/insects.cfm>

ODA Insect Pest Prevention and Management Program
http://www.oregon.gov/ODA/PLANT/ippm_index.shtml

Oregon State University Ken Gray Insect Image Collection
<http://www.ent3.orst.edu/kgphoto/index.cfm>

WSDA Pest and Insect Program
<http://agr.wa.gov/PlantsInsects.default.htm>

Plant Disease Web Sites

Agri-Food Canada Pulse Crop Diseases
http://paridss.usask.ca/specialcrop/pulse_diseases/index.html

California Oak Mortality Task Force
<http://www.cnr.berkeley.edu/comtf/>

Cornell University Vegetable MD Online
<http://vegetablemdonline.ppath.cornell.edu/>

Plant Management Network Soybean Rust
<http://www.plantmanagementnetwork.org/infocenter/topic/soybeanrust/>

Plum Pox Virus, Symptoms Booklet
<http://ppvbooklet.cas.psu.edu/>

University of Idaho Wheat Disease Problems
<http://www.uidaho.edu/ag/plantdisease/wheat.htm>

West Virginia University Fruit Pathology
<http://www.caf.wvu.edu/kearneysville/pathology.html>

Weed Web Sites

Idaho Weed Awareness Campaign
<http://www.idahoweedawareness.org>

Idaho Weed Control Association
<http://www.idahoweedcontrol.org>

Center for Invasive Plant Management
<http://www.weedcenter.org>

North American Weed Management Association
<http://www.nawma.org>

Western Weed Society of America
<http://www.wsweedscience.org/Society/society.asp>